National Institute of Environmental Health Sciences

A ricardian analysis of the distribution of climate change impacts on agriculture across agro-ecological zones in Africa

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Abstract:

This paper examines the distribution of climate change impacts across the 16 agro-ecological zones in Africa using data from the Food and Agriculture Organization combined with economic survey data from a Global Environment Facility/World Bank project. Net revenue per hectare of cropland is regressed on a set of climate, soil, and socio-economic variables using different econometric specifications "with" and "without" country fixed effects. Country fixed effects slightly reduce predicted future climate related damage to agriculture. With a mild climate scenario, African farmers gain income from climate change; with a more severe scenario, they lose income. Some locations are more affected than others. The analysis of agro-ecological zones implies that the effects of climate change will vary across Africa. For example, currently productive areas such as dry/moist savannah are more vulnerable to climate change while currently less productive agricultural zones such as humid forest or sub-humid zones become more productive in the future. The agro-ecological zone classification can help explain the variation of impacts across the landscape.

Source: Ask your librarian to help locate this item.

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES), Other Climate Scenario

Special Report on Emissions Scenarios (SRES) Scenario: SRES A2

Other Climate Scenario: Hot and dry CCC climate scenario;Mild and wet PCM scenario

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Security

Food/Water Security: Agricultural Productivity, Livestock Productivity

Geographic Feature:

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : Savannah;Forest

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Africa

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type:

format or standard characteristic of resource

Research Article

Resilience: ☑

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale: ☑

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content